UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/618,420	07/18/2000	Frank B. Schmuck	POU9-2000-0091-US1	9428

7590 02/23/2004		EXAMINER

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ART UNIT	PAPER NUMBER
2187	

DATE MAILED: 02/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 December 2003</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-69</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-69</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The enclosed detailed action is in response to the Amendment submitted on December 4, 2003.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 9, 22-24, 30, 43-45, 49-50 and 57 are rejected under 35 U.S.C. 102(b) as being anticipated by Lynch (USPN: 5,829,031).

Regarding claims 1, 9, 22, 30, 49 and 57, Lynch discloses a method of managing prefetching of data files [data] comprising detecting a pattern of requests for data of multiple files [the multiple files corresponds to the files in which the data elements belong to], wherein the pattern is based on one or more user-defined attributes (user-defined attributes are the predefined functions indicated via manipulation/use of the register which is set and thus defined by the heuristic unit [user]) of the multiple files (C 8, L 55-67; C 9; C 10, L 1-14) and prefetching data of a plurality of files (files corresponding to the prefetched data), in response to the detecting indicating the pattern (C 8, L 32-45)(w.r.t claims 9, 30 and 57 – the data is prefetched at a rate substantial to the speed of requests for data [the speed of request is the speed of requests from a group of instructions accessing data having a detected pattern]). Additionally, regarding claim 49, hardware systems/devices comprise software/firmware [such as device drivers, etc.] to control its

operations and thus it is evident that Lynch's system comprises a computer readable medium

containing executable instructions for performing the above features.

Regarding claims 43-44, Lynch discloses a first node [logic internal to Reference 36 in Figure 1

which performs the detecting function] detecting a pattern of requests for data of multiple files

[the multiple files corresponds to the files in which the data elements belong to] and a second

node [logic within Reference 36 in Figure 1 which performs the prefetching function]

prefetching data of a plurality of files, in response to the detecting indicating the pattern (C 8, L

32-45).

Regarding claims 2, 23 and 50, Lynch discloses the data comprising metadata (the data in the

cache comprises a tag which indicates where the data is located).

Regarding claim 3, 24 and 51, Lynch discloses the multiple files and the plurality of files are

associated with a single directory (the system inherently comprises a page table/translation table

[directory] for the main memory; Figure 5).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 4-5, 25-26 and 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Lynch (USPN: 5,829,031) in view of Kahle (USPN: 6,574,712).

Lynch discloses the limitations cited above for claims 1, 22 and 49, however, Lynch does not

disclose determining whether a cache miss threshold has been exceeded [whether a predefined

number of requests for data could not be satisfied by reading [accessing] the cache], wherein the

detecting indicates the pattern when the cache miss threshold has been exceeded. However,

Kahle teaches the concept of determining whether a cache miss threshold has been exceeded

(two cache misses), wherein the detecting [detecting a stream pattern] indicates the pattern [the

stream pattern] when the cache miss threshold has been exceeded (C 8, L 56-58; C 6, L 53-60; C

8, L 35-55). Kahle teaches that this feature paces the prefetches to work optimally on hardware

with a given set of memory latencies (C 8, L 46-50), which thereby improves the performance of

the system. Lynch's system does not disclose prefetching based on cache misses and thus could

stand improvement [improving hit rate based on cache misses] based on the teachings of Kahle.

Hence, it would have been obvious to one of ordinary skill in the art to use Kahle's teachings

with the system taught by Lynch for the desirable purpose of improved performance.

6.   Claims 6-7, 27-28 and 54-55 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Lynch (USPN: 5,829,031) in view of Kahle (USPN: 6,574,712) as applied to claims 5, 26

and 53 and further in view of Ryan (USPN: 5,367,656).

Lynch and Kahle disclose the above cited features, however, Lynch and Kahle do not disclose

the determining step comprising comparing a counter of cache misses that occurred within a

preselected time interval to the cache miss threshold to determine whether the cache miss

threshold has been exceeded, wherein the counter and the cache miss threshold are associated

with a directory block of a directory of files, the directory of files comprising the multiple and

plurality of files and the directory of files comprising one or more directory. However, Ryan

teaches the concept of comparing a counter of events that occurred within a preselected time

interval to a threshold to determine whether the threshold has been exceeded (C 7, L 50-68; C 8,

L 1-46), wherein the counter and the cache miss threshold are associated with a directory block

of a directory of files [the system directory], the directory of files comprising the multiple and

plurality of files and the directory of files comprising one or more directory (the system

inherently comprises a page table/translation table [directory] for the main memory, which

comprises all the files in the system). This feature taught by Ryan provides a simple and

efficient mechanism for determining when a threshold has been exceeded. Thus it would have

been obvious to one of ordinary skill in the art to use Ryan's teachings in the system taught by

Lynch and Kahle for determining when the cache miss threshold has been exceeded for the

desirable purpose of efficiency and simplicity.

7.   Claims 8, 29 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lynch (USPN: 5,829,031) in view of Lopez-Aguado et al. (USPN: 6,317,810).

Lynch discloses the limitations cited above in claims 1, 12, 22, 33, 49 and 60, however, Lynch

does not disclose prefetching data of at least some files of the plurality of files in parallel.

Lopez-Aguado teaches the concept of prefetching data in parallel (C 8, L 16-37). Lopez-Aguado

teaches that this feature improves data bandwidth (C 9, L 23-24). Hence, it would have been

obvious to one of ordinary skill in the art to use Lopez-Aguado's teachings with the teachings of

Lynch for the desirable purpose of improved performance and increased bandwidth.

8.   Claims 10, 31 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lynch (USPN: 5,829,031) in view of Ryan (USPN: 5,367,656).

Lynch discloses the limitation cited above in claim 1, 12, 22, 33, 49 and 60, additionally Lynch

discloses obtaining data associated with a number of files of the plurality of files (C 8, L 32-45 -

the data is obtained when the data is prefetched). However, Lynch does not disclose determining

whether a cache hit threshold has been reached and obtaining data associated with one or more

additional files of the plurality of files in response to the cache hit threshold. Ryan teaches the

concept of determining whether a cache hit threshold has been reached and obtaining data

associated with one or more additional files of the plurality of files (files corresponding to the

prefetched data) in response to the cache hit threshold (C 7, L 8-12, L 50-68; C 8, entire; C 9, L

1-7; C 3, L 60-68; C 4, L 1-44). This feature taught by Ryan allows the system to adapt to ratio

improving and ratio deteriorating trends by accordingly enabling and disabling the prefetching

mechanism [cache miss prediction mechanism] (C 2, L 58-63) and thereby provides flexibility

and improved performance to the system. Lynch's system performs prefetching in the same

manner all the time and does not selectively prefetch based on certain thresholds which does not

allow the system to adapt its prefetching functionality optimally to meet the dynamic needs of

the system and thus one of ordinary skill would have recognized the benefits of Ryan's teachings

and would have been motivated to use Ryan's teachings in the system taught by Lynch for the

desirable purpose of flexibility and improved performance.

9.   Claims 11, 32 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lynch (USPN: 5,829,031) in view of Ryan (USPN: 5,367,656) as applied to claims 10, 31 and

58 above and further in view of Lopez-Aguado (USPN: 6,317,810).

Regarding claims 11, 32 and 59, Lynch and Ryan do not explicitly disclose issuing a plurality of

requests to read data from a number of files in parallel. However, Lopez-Aguado teaches the

concept of issuing a plurality of request [prefetch request] to read [prefetch] data in parallel (C 8,

L 16-37). Lopez-Aguado teaches that this feature improves data bandwidth (C 9, L 23-24).

Hence, it would have been obvious to one of ordinary skill in the art to use Lopez-Aguado's

teachings with the system taught by Lynch and Lopez-Aguado for the desirable purpose of

improved performance and increased bandwidth.

10.   Claims 12, 15-16, 33, 36-37, 45-46, 60 and 63-64 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Lynch (USPN: 5,829,031) in view of Sollars (USPN: 5,799,164).

Regarding claims 12, 15, 33, 36, 60 and 63, Lynch discloses controlling the prefetching of data

of a plurality of files by pacing at least the initiating of the prefetching based upon requests for

data [prefetching is paced based upon the detection of a pattern of requests] and prefetching the

data of the plurality of files, in response to the controlling (C 8, L 32-45). Additionally,

regarding claim 60, hardware systems/devices comprise software/firmware [such as device

drivers, etc.] to control its operations and thus it is evident that Lynch's system comprises a

computer readable medium containing executable instructions for performing the above features.

Lynch does not disclose controlling, subsequent to determining that prefetching of data is to occur, a rate at which the data is prefetched by pacing the prefetching based upon requests for data. However, Sollars teaches the concept of controlling, subsequent to determining that prefetching of data is to occur, a rate at which the data is prefetched by pacing the prefetching based upon requests for data [via the prefetch program counter] (Abstract; C 4, L 47-67; C 5 – C 8). Sollars' teachings provide an efficient mechanism for prefetching data. Hence, one of ordinary skill in the art would have recognized the benefits of Sollars teachings and would have been motivated to use such teachings in the system taught by Lynch for the desirable purpose of efficiency.

Additionally with respect to claims 45-46, Lynch discloses a first node [logic internal to Reference 36 in Figure 1 which performs the pacing function by detecting] for controlling the prefetching of data of a plurality of files by pacing at least the initiating of the prefetching based upon requests for data [prefetching is paced based upon the detection of a pattern of requests] and a second node [logic within Reference 36 in Figure 1 which performs the prefetching function] for prefetching the data of the plurality of files, in response to the controlling (C 8, L 32-45).

Regarding claims 16, 37 and 64, Lynch discloses the data comprising metadata (the data in the cache comprises a tag which indicates where the data is located).

11.   Claims 13, 34 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lynch (USPN: 5,829,031) and Sollars (USPN: 5,799,164) and further in view of Ryan (USPN:

5,367,656).

Lynch discloses the limitation cited above in claim 12, 33 and 60, however, Lynch and Sollars

do not disclose determining whether a cache hit threshold has been reached and obtaining data

associated with one or more additional files of the plurality of files in response to the cache hit

threshold. Ryan teaches the concept of determining whether a cache hit threshold has been

reached and obtaining data associated with one or more additional files of the plurality of files

(files corresponding to the prefetched data) in response to the cache hit threshold (C 7, L 8-12, L

50-68; C 8, entire; C 9, L 1-7; C 3, L 60-68; C 4, L 1-44). This feature taught by Ryan allows

the system to adapt to ratio improving and ratio deteriorating trends by accordingly enabling and

disabling the prefetching mechanism [cache miss prediction mechanism] (C 2, L 58-63) and

thereby provides flexibility and improved performance to the system. The system taught by

Lynch and Sollars performs prefetching in the same manner all the time and does not selectively

prefetch based on certain thresholds which does not allow the system to adapt its prefetching

functionality optimally to meet the dynamic needs of the system and thus one of ordinary skill

would have recognized the benefits of Ryan's teachings and would have been motivated to use

Ryan's teachings in the system taught by Lynch and Sollars for the desirable purpose of

flexibility and improved performance.

12.   Claims 14, 35 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lynch (USPN: 5,829,031) and Sollars (USPN: 5,799,164) and further in view of Lopez-Aguado

et al. (USPN: 6,317,810).

Lynch and Sollars disclose the limitations cited above in claims 12, 33 and 60, however, Lynch

and Sollars do not disclose prefetching data of at least some files of the plurality of files in

parallel. Lopez-Aguado teaches the concept of prefetching data in parallel (C 8, L 16-37).

Lopez-Aguado teaches that this feature improves data bandwidth (C 9, L 23-24). Hence, it

would have been obvious to one of ordinary skill in the art to use Lopez-Aguado's teachings

with the teachings of Lynch and Sollars for the desirable purpose of improved performance and

increased bandwidth.

13.   Claims 17, 20, 38, 41, 47-48, 65 and 68 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Lynch (USPN: 5,829,031) in view of Mason, Jr. (USPN: 5,884,098).

Regarding claims 17, 20, 38, 41, 65 and 68, Lynch discloses detecting a pattern of requests for

data of multiple files of a directory block of one or more directory blocks [the multiple files

corresponds to the files in which the data elements belong to]; wherein the pattern is based on

directory entries of the multiple files within the directory block [the directory block is comprised

of all the cache lines in the cache and thus the detection of the pattern is based on all the cache

entries] and prefetching a plurality of data associated with the directory block in response to

detecting the pattern (C 8, L 32-45). Lynch does not explicitly disclose detecting a pattern of

requests for multiple inodes [data] associated with multiple files of a directory block of the one

or more directory blocks and prefetching a plurality of inodes associated with the directory block

in response to the detecting pattern. However, Mason teaches the concept and desire of prefetching inodes [metadata] (C 4, L 30-41; C 7, L 53-63; C 9, L 32-39). Mason teaches that prefetching metadata [inodes] provides enhanced performance. Lynch's teachings are directed to data in general and not to specific types of data. Hence, it would have been obvious to one of ordinary skill in the art to implement the features taught by Lynch for inode data in a system requiring access [read/write] to such data for the desirable purpose of improved performance.

Regarding claims 47-48, Lynch discloses a first node [logic internal to Reference 36 in Figure 1 which performs the detecting functionality] for detecting a pattern of requests for data of multiple files of a directory block of one or more directory blocks [the multiple files corresponds to the files in which the data elements belong to] and a second node [logic within Reference 36 in Figure 1 which performs the prefetching function] for prefetching a plurality of data associated with the directory block in response to detecting the pattern (C 8, L 32-45). Lynch does not explicitly disclose detecting a pattern of requests for multiple inodes [data] associated with multiple files of a directory block of the one or more directory blocks and prefetching a plurality of inodes associated with the directory block in response to the detecting pattern. However, Mason teaches the concept and desire of prefetching inodes [metadata] (C 4, L 30-41; C 7, L 53-63; C 9, L 32-39). Mason teaches that prefetching metadata [inodes] provides enhanced performance. Lynch's teachings are directed to data in general and not to specific types of data. Hence, it would have been obvious to one of ordinary skill in the art to implement the features taught by Lynch for inode data in a system requiring access [read/write] to such data for the desirable purpose of improved performance. Additionally, regarding claim 65, hardware

systems/devices comprise software/firmware [such as device drivers, etc.] to control its operations and thus it is evident that Lynch's system comprises a computer readable medium containing executable instructions for performing the above features.

14.   Claims 18, 39 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lynch (USPN: 5,829,031) in view of Mason, Jr. (USPN: 5,884,098) as applied to claims 17, 38 and 65 above and further in view of Ryan (USPN: 5,367,656).

Lynch and Mason disclose the above limitations, however, Lynch and Mason do not disclose a counter associated with the directory block and a cache miss threshold, the counter representing a number of inodes associated with the directory block that were requested within a preselected amount of time and were not found [number of cache misses] and wherein the detecting comprises comparing the counter to the cache miss threshold to determine whether the pattern exists. However, Ryan teaches the concept of comparing a counter of events that occurred within a preselected amount of time to a threshold to determine whether the threshold has been exceeded to determine if a pattern exists (C 7, L 50-68; C 8, L 1-46), wherein the counter and the cache miss threshold are associated with a directory block of a directory of files [the system directory] and a threshold. This feature taught by Ryan provides a simple and efficient mechanism for determining when a threshold has been exceeded. Thus it would have been obvious to one of ordinary skill in the art to use Ryan's teachings in the system taught by Lynch and Mason for determining when the cache miss threshold has been exceeded for the desirable purpose of efficiency and simplicity.

15.   Claims 19, 40 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lynch (USPN: 5,829,031) in view of in view of Mason, Jr. (USPN: 5,884,098) as applied to

claims 17, 38 and 65 above and further in view of Lopez-Aguado et al. (USPN: 6,317,810).

Lynch and Mason disclose the limitations cited above in claims 17, 38 and 65, however, Lynch

and Mason do not disclose prefetching a portion of the plurality of inodes [data] in parallel.

Lopez-Aguado teaches the concept of prefetching data in parallel (C 8, L 16-37). Lopez-Aguado

teaches that this feature improves data bandwidth (C 9, L 23-24). Hence, it would have been

obvious to one of ordinary skill in the art to use Lopez-Aguado's teachings with the teachings of

Lynch and Mason for the desirable purpose of improved performance and increased bandwidth.

16.   Claims 21, 42 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lynch (USPN: 5,829,031) in view of Mason, Jr. (USPN: 5,884,098) as applied to claims 20, 41

and 68 and further in view of Ryan (USPN: 5,367,656).

Lynch and Mason disclose the limitation cited above in claims 20, 41 and 68, however, Lynch

and Mason do not disclose determining whether a cache hit threshold has been reached, wherein

prefetching one or more inodes of data associated with another directory block is initiated when

the cache hit threshold is reached. Ryan teaches the concept of determining whether a cache hit

threshold has been reached and obtaining data associated with one or more additional files in

response to the cache hit threshold (C 7, L 8-12, L 50-68; C 8, entire; C 9, L 1-7; C 3, L 60-68; C

4, L 1-44). This feature taught by Ryan allows the system to adapt to ratio improving and ratio

deteriorating trends by accordingly enabling and disabling the prefetching mechanism [cache

miss prediction mechanism] (C 2, L 58-63) and thereby provides flexibility and improved

performance to the system. The system taught by Lynch and Mason performs prefetching in the same manner all the time and does not selectively prefetch based on certain thresholds which does not allow the system to adapt its prefetching functionality optimally to meet the dynamic needs of the system and thus one of ordinary skill would have recognized the benefits of Ryan's teachings and would have been motivated to use Ryan's teachings in the system taught by Lynch and Mason for the desirable purpose of flexibility and improved performance.

Response to Arguments

17.   Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

18.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wei, L. et al. - Prefetching and Caching Metadata in a Distributed NFS Server, December, 2000., IEEE 4th Conference on Algorithms and Architectures on Parallel Processing, Hong Kong.

19.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

20.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kimberly N. McLean-Mayo whose telephone number is 703-308-

9592. The examiner can normally be reached on M-F (9:00 - 6:30) First Friday Off.
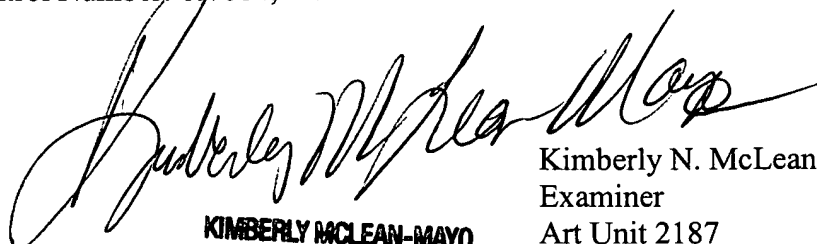
If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Donald Sparks can be reached on 703-308-1756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

21.   Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kimberly N. McLean-Mayo
Examiner
Art Unit 2187

KIMBERLY MCLEAN-MAYO
PRIMARY EXAMINER

KNM

February 20, 2004